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S. D.—71. [This leaflet is distributed only with the seeds to which it relates.]

United States Department of Agriculture,

BUREAU OF PLANT INDUSTRY,

New and Rare Seed Distribution,

WASHINGTON, D. C.

CARPET GRASS.

OBJECT OF THE DISTRIBUTION.—The distribution of new and rare seeds has for its object the dissemination of new and rare crops, improved strains of staple crops, and high-grade seed of crops new to sections where the data of the Department indicate such crops to be of considerable promise. Each package contains a sufficient quantity for a preliminary trial, and where it is at all practicable the recipient is urged to use the seed for the production of stocks for future plantings. It is believed that if this practice is followed consistently it will result in a material improvement in the crops of the country.

Please make a full report on the inclosed blank regarding the results obtained with the seed.

VALUE OF CARPET GRASS.

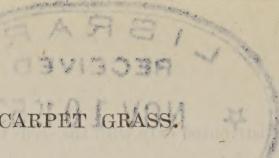
Under conditions suitable for its growth, carpet grass is at least equal to Bermuda grass in carrying capacity and feeding value, and will thrive on soils where Bermuda grass can be made to succeed only by the use of fertilizers.

It is estimated that at least one-third of the Coastal Plain area of the Southern States will grow excellent carpet grass. Furthermore, by the use of this grass most of this area can be developed into admirable permanent pastures without removing the stumps from the land. Land thus improved will support many times the live stock that now exist on the native ranges.

The natural grasses of the Coastal Plain do not furnish good pasture. They are mainly broom sedge (various species of *Andropogon*) and wire-grass (a name indiscriminately applied to several wiry, slender leafed, tough grasses, the most widespread of which is *Aristida gracilis*). These grasses are burned off nearly every winter when dry. From early spring to midsummer the young growth furnishes very good pasture, from midsummer till frost the animals gain slowly if at all, but from frost until the following spring they become greatly emaciated. Much of this very poor natural pasture can be replaced cheaply by excellent high-grade pastures with carpet grass as the basis. For this purpose carpet grass is of outstanding importance.

DESCRIPTION.

Carpet grass (*Axonopus compressus*) is a perennial pale-green grass, spreading by creeping stems which root at every joint, thus forming a close, compact turf. The stems and sheaths are compressed and thus two edged, and this character taken with the blunt leaf tips will distinguish carpet grass from most other grasses. The seed stems



are very slender, two or three jointed, and 12 to 24 inches high. Very often two flowering branches arise from the sheath of each stem leaf. Each stem bears two or three, rarely four or five, slender spikes of flowers, which later form very small seeds. Flowering stems are produced almost continuously from early spring until frost in the fall.

Young plants begin their growth in a more or less circular small patch and quickly send out runners in all directions. Under favorable conditions, when without competition from other plants, a single plant in a single season will spread so as to form a circle 2 or 3 feet in diameter and produce abundant flowering stems.

Carpet grass never becomes troublesome as a weed, and when its eradication is desirable it is very easily destroyed by plowing it under.

HISTORY.

Previous to 1890 carpet grass was known as Louisiana grass, but since then the name carpet grass has become general. Among the Creoles the name petit gazon is in frequent use. Unfortunately, the name carpet grass is also applied, especially in Florida, to any broad-leaved grass, such as various native species of *Paspalum*, but the true carpet grass can readily be distinguished by the blunt leaf tips and compressed stems.

SOIL AND MOISTURE RELATION.

Carpet grass will thrive on any type of soil if the moisture conditions are favorable, but like other plants it grows better on rich than on poor soils. It is remarkable, however, for its ability to grow on poor sandy soils, thriving under such conditions far better than Bermuda grass. Even on many alluvial soils, as in the lower Mississippi Valley, carpet grass will gradually crowd out Bermuda grass. The latter, however, will grow under more droughty conditions than will carpet grass. Where the ground-water level is only a few inches from the surface, carpet grass grows luxuriantly, but it is equally good on well-drained hilly lands with a clay subsoil that prevents their becoming too dry. The ideal condition for carpet grass is a water table only 1 or 2 feet below the surface. Large areas of such lands make up the so-called flatwoods. Carpet grass is not injured by ordinary floods, but quickly renews growth when the water subsides. Thorough compaction of the soil seems very important for carpet grass, and it is rarely found growing where the soil is loose.

Carpet grass seems entirely indifferent to lime, growing equally as well on "acid" soils as it does along the borders of shell roads. Actual field tests have shown no noticeable result from the use of lime.

TEMPERATURE ADAPTATIONS.

Carpet grass is of tropical origin. Its northern limits indicate that it can rarely survive a winter temperature lower than about 10° F. It certainly will not withstand conditions so far north as does Bermuda grass, probably because all of its stems are above ground, and

Bermuda grass possesses underground stems that are protected. On the other hand, the leaves of carpet grass are not injured by frosts that completely kill the leaves of Bermuda grass, and, furthermore, carpet grass greens up in mild winter weather much more than does Bermuda grass. For these reasons carpet grass may be grazed considerably later in the fall and earlier in the spring.

ESTABLISHING CARPET-GRASS PASTURES.

On cultivated land carpet grass succeeds best on a well-firmed seed bed. The seed may be sown any time from early spring till after midsummer when the moisture conditions are favorable. To secure a full stand of the grass promptly, seed should be sown at the rate of 10 pounds per acre. A method of seeding that has often been used is to cut grass with mature seeds and scatter the hay over the land where it is desired to establish carpet-grass pasture. Many writers have advocated planting the grass vegetatively, as Bermuda grass is propagated, but the expense of this method has discouraged its employment.

It is frequently desirable to establish carpet-grass pasture in open forests or on cut-over land without going to the expense of clearing. To do this all the standing trees should be deadened by girdling. The land to be seeded should be burned over in winter in order to remove all the tall straw of broom sedge, wire grass, and other bunch grasses. Plowing or disk ing is not necessary, and the available evidence does not indicate that it is desirable. As soon as the native grasses begin to grow, animals should be put on the area in sufficient numbers to keep the grass eaten short. Carpet grass at the rate of 5 pounds per acre may then be sown at any time after the weather becomes warm, but preferably when there is ample moisture. Under close grazing most of the native bunch grasses will be killed by the end of the first season and carpet grass will occupy the land. It is not advisable to seed carpet grass indiscriminately on cut-over land. To get good carpet-grass pasture on such lands the rate of grazing must be under control, so that it will be heavy enough to destroy the broom sedge and wire-grass while the carpet grass is getting established. Practically all bunch grasses may be destroyed by continuous heavy grazing, but creeping grasses are not materially injured by such treatment. The trampling incidental to heavy grazing seems also to be an important element in securing good carpet-grass pasture. If lespedeza (Japan clover) is not already on the land it should also be sown, as it succeeds well if mixed with carpet grass. The general plan of converting broom-sedge and wire-grass lands to carpet-grass pastures may thus be summarized:

- (1) All brush should be cut and all trees not valuable for timber deadened by girdling.

- (2) Burn over the area as cleanly as possible when conditions are favorable. Disking or plowing is not necessary and apparently not desirable. In lieu of burning, close mowing may be used, but this is more expensive.
- (3) Limit the area, preferably by fencing, to the acreage that can be kept heavily grazed.
- (4) Seed to carpet grass at the rate of 5 to 10 pounds per acre any time after spring weather has begun and moisture conditions are favorable. If not already present lespedeza should be seeded at the rate of 5 pounds per acre.
- (5) Drain by open ditches all areas where water is likely to stand for a considerable time.
- (6) Heavy grazing will destroy all bunch grasses in one or at most two seasons, and solid carpet-grass sod will cover the land.
- (7) On "flatwoods" and other soils well suited to carpet grass, gall berry and bayberry often occupy much land. These shrubs may be eradicated by cutting with a brush hook or other device two or three times. Gall berry and bayberry are both so bitter that animals refuse to eat them.

WEEDS.

Two native weeds in particular, bitterweed (*Helenium tenuifolium*) and fennel or Yankee weed (*Eupatorium capillifolium*), are very likely to invade carpet-grass pastures. These weeds should be mowed at least once a season, before they have formed seed. This is sometimes difficult to accomplish on stump land, and therefore the removal of stumps as promptly as possible is desirable. Goats will keep down fennel to a considerable extent. After two or three seasons further mowing will be unnecessary.

CARRYING CAPACITY.

Good carpet-grass pasture on the evidence available seems little, if any, inferior in value to bluegrass pasture. The experience of careful farmers indicates that the best carpet-grass pasture will furnish grazing for one cow to the acre for about five months each season and for one cow to 2 acres for three or four months longer.

Close grazing is very essential to maintain the grass in the best condition. The trampling by the stock keeps the soil compacted, favoring the spread of carpet grass, and close grazing keeps down the taller growing plants which would injure it by shading.

If a field of carpet grass is left ungrazed after October 1 it will grow quite tall. In the protection thus afforded green leaves will appear through much of the winter and furnish winter pasture. The cattle in eating the green leaves consume incidentally many of the dry leaves which otherwise they would avoid. Such a field must never be burned over, as fire is very destructive to carpet grass.

OTHER GRASSES TO GROW IN MIXTURE WITH CARPET GRASS.

Carpet grass and Bermuda grass rarely grow together for any length of time. As a rule Bermuda grass prevails on clay soils, while carpet grass dominates on sandy soils. On soils that will grow both grasses it is often economy to seed the two in mixture, but eventually one or the other will occupy the land almost exclusively.

Dallis grass (*Paspalum dilatatum*) usually grows well in carpet-grass sod, and it is a good plan to sow seed of this, especially on the better soils, after the carpet grass is well established. Plowing furrows 10 feet apart and sowing the rather expensive Dallis grass seed in the furrows is a good plan.

North of Florida lespedeza, if not already present, should always be added to carpet grass. It succeeds admirably and adds a desirable constituent to the feed.

Carolina clover (a native species), yellow hop clover, and rabbit-foot clover (the last two introduced) are desirable legumes. The first comes in naturally and the other two if introduced spread year by year. Commercial seed of these clovers is not on the market.

Bur clover and perhaps black medic are exceedingly desirable legumes to establish in carpet-grass pasture, where the former often succeeds splendidly and results in a 12-month pasture. Success with bur clover is nearly always conditional on securing abundant inoculation. Black medic on some soil types may be expected to succeed at least as well as bur clover. Augusta vetch is another exceedingly desirable winter legume for carpet-grass pastures. All of the above legumes reseed themselves naturally.

White clover is also a very desirable constituent in carpet-grass pastures, particularly on moist or rich soils. It will make much feed in the cool season, but becomes dormant or semidormant in summer.

Italian rye-grass sown on carpet grass about October 1 under favorable moisture conditions will make much winter grazing. With this grass, however, it is necessary to seed it every season.

Carpet-grass pasture supplemented by the plants mentioned will make an ideal pasture that can be grazed nearly, if not quite, the entire 12 months.

On low or moist soils, particularly near the northern limits of carpet grass, the first seeding of a pasture either on plowed or unplowed land may well be to redtop. The advantages are that the seed is much cheaper and the 1-year-old pasture is an excellent foundation on which to sow carpet-grass seed. Redtop seed in the area referred to must be sown in the fall or early winter. Pure redtop pastures may be expected to persist two or three years. For permanent pastures the addition of carpet grass is imperative.

Farmers' Bulletin 1130, entitled "Carpet Grass," giving complete information concerning the culture and uses of this grass, is available for free distribution on application to the Secretary of Agriculture, Washington, D. C.

Approved:

Wm. A. TAYLOR,

Chief of Bureau.

AUGUST 8, 1922.

